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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/615,421

07/09/2003

Dominicus Jacobus Petrus Adrianus Franken

081468-0304791

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7590

09/23/2004

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EXAMINER

FERNANDEZ, KALIMAH

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,421

Applicant(s)

FRANKEN ET AL.

Examiner

Kalimah Fernandez

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-15 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-15 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7-9-03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5,8-15, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat No 6,036,162 issued to Hayashi.
4. Hayashi discloses a radiation system constructed and arranged to provide a projection beam of radiation (col.10, lines 26-30; col.18, lines 35-43).
5. Hayashi discloses a support structure constructed and arranged to support a patterning device (col.10, lines 30-33).
6. Hayashi discloses the patterning device constructed and arranged to pattern the projection beam according to a desired pattern (col.10, lines 26-38).
7. Hayashi discloses a substrate table constructed and arranged to hold a substrate (col.9, lines 62-64).
8. Hayashi discloses a projection system constructed and arranged to project the patterned beam onto a target portion of the substrate (col.9, lines 41-43).
9. Hayashi discloses a base to which the support structure and the substrate table are mounted (col. 13, lines 60-65).
10. Hayashi discloses a reference frame compliantly mounted to the base, wherein the projection system comprises at least one optical element

mounted on a projection frame that is compliantly mounted to the reference frame (col.9, lines 43-61). The term 'compliantly mounted' has been given its dictionary definition to mean a soft mounted.

11. As per claims 2 and 12, Hayashi discloses an eigenfrequency of the projection frame compliantly mounted to the reference frame is between about 10 and 30 Hz (col. 4, lines 9-19; col.24, lines 52-57).

12. As per claims 3 and 13, Hayashi discloses an eigenfrequency of the reference frame compliantly mounted to the base is about .5Hz (col.28, lines 15-29).

13. As per claims 4 and 14, Hayashi discloses the projection system is compliantly mounted to the reference frame by at least three compliant mounts (col.9, lines 48-61).

14. As per claims 5 and 15, Hayashi discloses the projection system is mounted to the reference frame on nodal axes of a dominant mode of bending vibration of the reference frame or a torsional vibration of the reference frame (col.17, line 47-col.18, line 6).

15. As per claims 8 and 18, Hayashi discloses the projection system is compliantly mounted to the reference frame by at least one compliant mount that is an air-mount (col.12, lines 3-7).

16. As per claims 9 and 19, Hayashi discloses the motion of the projection system relative to the reference frame is damped (col.11, lines 31-39; col.22, lines 5-27; col.28, lines 15-29).

17. As per claims 10 and 20, Hayashi discloses the motion of the projection system relative to the reference frame is actively damped by piezoelectric actuators or Lorentz-force actuators (col.17, lines 47-67; col.24, lines 44-57; col.25, lines 19-37; col.29, lines 46-51).

18. As per claim 11, Hayashi discloses providing a substrate that is at least partially covered by a layer of radiation- sensitive material, projecting a patterned beam of radiation onto a target portion of the layer of radiation- sensitive material using a projection system; supporting a reference frame, a support structure constructed and arranged to support a patterning device, and a substrate table constructed and arranged to hold the substrate, on a base, wherein the reference frame is compliantly mounted to the base and the projection system is mounted to the reference frame; and compliantly mounting the projection system to the reference frame while projecting the patterned beam of radiation onto the target portion (col.9, line 38-col.10, line 38).

19. As per claim 21, Hayashi discloses a radiation system constructed and arranged to provide a projection beam of radiation (col.10, lines 26-30; col.18, lines 35-43); a support structure constructed and arranged to support a patterning device, the patterning device constructed and arranged to pattern the projection beam according to a desired pattern (col.10, lines 26-38); a substrate table constructed and arranged to hold a substrate (col. 13, lines 60-65); a projection system constructed and arranged to project the patterned beam onto a target portion of the substrate (col.9, lines 41-43); a base to which the support structure and the substrate table are mounted (col. 13, lines 60-65); a reference frame mounted to the base, wherein the projection system comprises at least one optical element mounted on a projection frame that is mounted to the reference frame(col.9, lines 43-61); at least one first isolation mount operatively between the reference frame and the base to inhibit vibrations or movements of a predetermined type from being transmitted from the base to the reference frame; and at least one second isolation mount operatively between the reference frame and the projection frame to inhibit vibrations or movements of a predetermined type from being transmitted

from the reference frame to the projection frame (see fig.12; col.24, lines 44-62).

Allowable Subject Matter

20. Claims 6-7 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. The following is a statement of reasons for the indication of allowable subject matter: the prior art of the record fails to teach or fairly teach the limitation "a T-shaped member with one of the projection system and the reference frame attached to both ends of a first elongate member of the T-shaped member and the other of the projection system and the reference frame attached to an end of a second elongate member of the T-shaped member."

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat No 6,222,614 issued to Ohtomo;

US Pat No 6,750,625 issued to Binnard et al; and US Pat No 6,285,444 issued to Osanai et al are considered relevant to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 571-272-2470. The examiner can normally be reached on Mon-Tues 6:30-3:30; Wed-Thurs 8-5 and Fri.9am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KF



JOHN R. LEE
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